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Master's Thesis

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User-defined Visualizations for AntTracks

AntTracks is a memory-monitoring tool for Java applications. It uses a modified version of the Hotspot virtual machine to generate a trace containing mainly object allocation events and object movment events. A dedicated post-processing tool can analyze this trace and compute object deallocations, as well as the entire heap state. This heap state contains the location of all objects, information about every object (e.g., type, size, allocation site) as well as references between objects.

The goal of this thesis is to extend the current visualization capabilities of the post-processing tool. The current version can only display the development of some metrics over time, as well as individual heap states, e.g., the distribution of allocation sites or types.

New features must include (but are not limited to) (1) visualization of a combination of metrics, e.g., type and age as well as (2) visualizing references from one object (or object groups) to another (including entire object graphs). Additionally, the tool must support an (3) API to process objects or trace events, so that the user can write custom Java code for heap analysis.

The master thesis must be submitted not later than 29.08.2017.

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